

December 2000



**Waste Management Plan  
for the Phase I  
Operable Unit 3-14  
Remedial Investigation/  
Feasibility Study**

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Remedial Investigation/Feasibility Study**

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**Idaho National Engineering and Environmental Laboratory  
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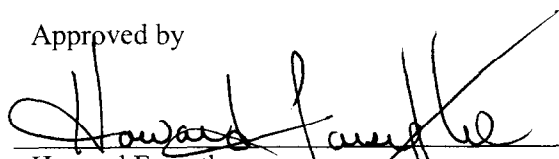
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# Waste Management Plan for the Phase I Operable Unit 3-14 Remedial Investigation/Feasibility Study

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## **ABSTRACT**

This waste management plan identifies the waste types and quantities expected to be generated during the Phase I implementation of the Operable Unit 3-14 Remedial Investigation and Feasibility Study (RI/FS). Operable Unit 3-14 is located at the Idaho Nuclear Technology and Engineering Center on the Idaho National Engineering and Environmental Laboratory. This plan addresses the various waste streams, sources, and classifications, and provides for the disposition of the waste streams generated in support of the Operable Unit 3-14 RI/FS. It also addresses the actions necessary to characterize and classify a new waste stream not previously identified. Each type of waste will be managed in accordance with applicable state and federal regulations. These specific requirements for the characterization, storage, and disposition are discussed in this waste management plan.



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## ACRONYMS

anti-C	anti-contamination
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
DOE	U.S. Department of Energy
DOE-ID	U.S. Department of Energy Idaho Operations Office
EPA	U.S. Environmental Protection Agency
FS	feasibility study
ICDF	INEEL CERCLA Disposal Facility
ICPP	Idaho Chemical Processing Plant
IDW	investigation derived waste
IWTS	Integrated Waste Tracking System
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
LDR	land disposal restrictions
LMITCO	Lockheed Martin Idaho Technologies Company
MCP	management control procedure
MSDS	Material Safety Data Sheet
OU	operable unit
P&T	packaging and transportation
PEW	process equipment waste
PPE	personal protective equipment
PRD	program requirements document

PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
RMA	radioactive materials area
ROD	Record of Decision
RRWAC	reusable property, recyclable materials, and waste acceptance criteria
SMO	Sample Management Office
SSSTF	Staging, Storage, Stabilization, and Treatment Facility
TCLP	toxicity characteristic leaching procedure
TSDF	treatment, storage, or disposal facility
USDOT	United States Department of Transportation
USGS	United States Geological Survey
WAC	waste acceptance criteria
WAG	Waste Area Group
WERF	Waste Experimental Reduction Facility
WGS	Waste Generator Services
WROC	Waste Reduction Operations Complex

# **Waste Management Plan for the Phase I Operable Unit 3-14 Remedial Investigation/Feasibility Study**

## **1. INTRODUCTION**

Waste Area Group (WAG) 3 Operable Unit (OU) 3-14 Remedial Investigation/Feasibility Study (RI/FS) will provide for the development of information necessary to support a refinement of the risks at the Idaho Nuclear Technology and Engineering Center (INTEC) Tank Farm and Snake River Plain Aquifer inside the INTEC fence. The RI/FS will also develop and analyze remediation options (remedial action alternatives) to mitigate the risks to acceptable levels. The remedial investigation (RI) phase of the OU 3-14 RI/FS includes four activities: the installation of aquifer wells, the test demonstration, the Tank Farm soil investigation, and the routine sampling and monitoring activities.

The scope of this plan is management, from generation through final disposition, of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC § 9601 et seq.) investigation derived waste (IDW) expected to be generated during Phase I of the RI/FS of OU-3-14. Anticipated waste streams include industrial, radioactive, Resource Conservation and Recovery Act (RCRA) (42 USC § 6901 et seq.) -listed or characteristically hazardous, and mixed waste generated during the investigation. Currently only waste from the RI activities outlined above is addressed in this plan, although other activities (e.g., treatability studies) may be performed under this RI/FS. When these tasks have been planned with sufficient detail, the waste management needs will be evaluated and this plan revised to address them, if necessary.

### **1.1 Purpose and Objectives**

The main purpose of this plan is to clarify and augment the existing program documents that address the characterization, storage, and disposition of waste expected to be generated during Phase I of the OU 3-14 RI. This plan implements Idaho National Engineering and Environmental Laboratory (INEEL) Management Control Procedures (MCPs), along with federal and state requirements and guidance. The objective of this plan is to provide WAG 3 personnel with a “road map” for the characterization, storage, and disposition of waste generated during Phase I of the Operable Unit 3-14 RI/FS.

## **2. SITE BACKGROUND**

General information on OU 3-14 and associated Phase I waste-generating activities addressed in this plan is presented in this section. Information on the anticipated waste stream types and quantities is given in Sections 3 and 4.

Most environmental contamination within OU 3-14 being addressed by the RI/FS is a result of operations within the INTEC associated with the INTEC Tank Farm. The INTEC Tank Farm has been in operation since 1952. The facility was used in the past to store high-level radioactive liquid waste and currently is used for storage of sodium-bearing liquid waste, which is more accurately classified as mixed transuranic waste. The INTEC Tank Farm consists of 20 underground tanks ranging in size from 69,644 to 1,135,500 L (18,400 to 300,000 gal). The tops of the tanks, or tank vaults are located approximately 3.1 m (10 ft) below ground surface (bgs), with their bases located up to depths of approximately 15.2 m (50 ft) bgs.

The INTEC Tank Farm soil has been excavated numerous times for various construction activities. When excavated, the removed soil was returned to the excavation or stockpiled material was used for backfill. The backfill material has similar physical characteristics to the removed material.

There are numerous underground pipes associated with the tanks. The piping system is used for the transfer of liquid waste to and from the processing buildings and between tanks. Most of the contamination is a result of problems with construction activities or valve leaks. The pipes vary in size from 3 to 46 cm (1 to 18 in.). Some pipes have been abandoned in place, capped, or sealed. It is unlikely that any of the abandoned pipes are pressurized.

The OU 3-14 RI/FS also addresses contamination in the Snake River Plain Aquifer (SRPA) underlying the fenced portion of the INTEC facility. A primary source of contamination to the aquifer is the former INTEC injection well, CERCLA Site CPP-23 (also known as well CPP-03), located on the north side of building CPP-666. The injection well was used to discharge low-level radioactive and chemical waste to the SRPA. It was used continuously from 1953 to 1984, when the well became plugged. An attempt to restore the well was made and the well was used only for emergencies until 1989. Another well, United States Geological Survey (USGS) -050, was also used to inject liquid waste into the subsurface (vadose zone) for brief periods when CPP-03 was out of service. During the Operable Unit 3-13 RI/FS (DOE-ID 1997a, 1997b) and subsequent Record of Decision (ROD) (DOE-ID 1999b), it was determined that the injection well (Site CPP-23) posed a significant threat to human health. There are, however, uncertainties in the volume and concentrations of residual waste in the vadose zone above the aquifer, as well as the quantity of residual waste remaining in the vicinity of the CPP-03 Injection Well. A final decision regarding this well will be made as part of OU 3-14.

### **2.1 Installation of Aquifer Wells**

The aquifer well drilling program focuses on contamination associated with the former INTEC injection well (CPP-03). The concerns to be addressed are whether a source of contamination exists in the sludge remaining in the injection well below the grout seal and in the sludge which was previously released, as well as whether there are any slow moving contaminants currently in the aquifer in the vicinity of the injection well. There are no existing monitoring wells in close enough proximity to the injection well to address these concerns. Additionally, OU 3-13 will not be installing wells which would make the OU 3-14 proposed aquifer wells redundant.

The lithology in the vicinity of CPP-03 consists of a surface alluvium approximately 13.7 m (45 ft) thick underlain by basalt flows intercalated by sedimentary interbeds. The sedimentary interbeds beneath the INTEC vary widely in thickness and continuity. However, within the vadose zone there are commonly recognized upper sedimentary interbed units between 34 and 43 m (110 and 140 ft) and a deep interbed at approximately 116 m (380 ft). These units are significant because they are the primary sedimentary interbeds on which perched water has been observed beneath the INTEC. Depth to the aquifer near CPP-03 is approximately 143.3 m (470 ft). The depth of the HI interbed is 158.5 to 167.6 m (520 to 550 ft) under the INTEC and 158.5 to 164.6 m (520 to 540 ft) in the vicinity of the injection well. Based upon observances in several wells surrounding CPP-03, the HI interbed dips to the south from CPP-03. Near Well USGS-41, the HI interbed is located approximately 23 m (75 ft) below the water table and is 1.2 m (4 ft) thick. The HI interbed is of significant concern to the aquifer well drilling program as a potential continuing source of contaminants beneath the water table.

Three aquifer wells will be drilled to investigate the SRPA groundwater quality within the INTEC fence line. One well will recore the grouted injection well and its final completion status depends on what is learned when the well is reopened. Samples of the sludge within the well and the basalt directly beneath the injection well will be collected. Two other wells will be completed to evaluate the aquifer adjacent and downgradient of the injection well. These two aquifer wells will be completed to the aquifer, penetrating through the HI interbed to a depth of 173 m (570 ft). These wells will be constructed with up to three screened zones, with one at the HI interbed, one below the HI interbed, and one above the HI interbed. The vadose zone and interbeds will be cored and collected from the borehole of the well adjacent to the injection well. This core will be turned over to the OU 3-13 Group 4 RD/RA project for handling, screening, sampling, logging, and storage.

Future locations of the aquifer wells have been compared to existing INTEC Environmentally Controlled Areas. None of the aquifer wells are located in areas that would contain contamination other than that already addressed by the RI/FS.

## **2.2 Test Demonstration**

The test will demonstrate the methods and sampling equipment that will be used during Phase I of the OU 3-14 RI. Their purpose is to mitigate the risks and ensure that data quality objectives associated with soil investigation in the INTEC Tank Farm will be met. The test demonstration will be performed in an area located outside of the INTEC facility between the INTEC boundary fence and the Big Lost River. In general, the area is classified as a semi-arid desert. The Big Lost River is a perennially intermittent river that has had a constant flow since the fall of 1996. Leakage from the Big Lost River may flow toward and under the INTEC Tank Farm which might result in transport of contaminants through the vadose zone.

The location of the test will be free of contamination, but will be monitored by Radiological Control Technicians (RCTs) to ensure that no unexpected contamination exists.

The demonstration will verify the effectiveness of direct-push technology in reaching the basalt (approximately 12.2 to 13.7 m [40 to 45 ft] bgs), and the ability to install functional instruments. A secondary objective will be met by determining background geochemical and hydrological information near the Big Lost River. Continuous core samples and lysimeter samples will be taken and analyzed to determine geochemical characterization of solids and water, hydrologic characterization, and radionuclide speciation. The demonstration will involve: 1) drilling several boreholes and installing accelerometers to measure seismic energy as the probes are driven into the adjacent ground; 2) driving probes to various depths; and 3) installing several soil moisture instruments.

## 2.3 Tank Farm Soil Investigation

A surface gamma survey across the entire Tank Farm is planned to assess the site for shallow radioactive sources and delineate radioactive subsurface structures. A surface gamma survey will utilize a mobile plastic scintillation detector to provide data for shallow sites CPP-26, 32E and 32W; determine if known hot spots produce a residual gamma field at the surface; and provide site-wide surface data for the risk assessment and feasibility study. The new data will be evaluated together with past site radiation surveys to define the shallow soil sources. Magnetic, electromagnetic, and ground penetrating radar surveys are being considered to help locate subsurface structures and piping prior to drilling.

An in situ radiation field screening is proposed to assess the soil within the entire Tank Farm area and to define the vertical and horizontal extent of the two known hot spots, sites CPP-31 and CPP-28/79. The in situ survey will require the installation of steel casing probes and will utilize several different detectors to log the probes.

Probes will be installed to a depth of 13.7 m (45 ft) or until refusal at basalt, and are planned to be up to 3 inches in diameter. The probes will be located in a grid pattern surrounding high probability areas that include the tanks, piping corridors, and the two known hot spots. The grid will be on 50-ft centers across the entire tank farm. Areas surrounding the Tank Farm which have a low probability of being contaminated still need to be assessed prior to planning remediation and to gather data down to the alluvium/basalt contact. Probes will also be installed at sites 58A, 58B, and 15 along the same grid spacing as within the Tank Farm.

The probes will be installed using a combination of tools. First, to guarantee avoidance of the subsurface structures and piping, a soil vacuum excavator will be used to remove soil. This tool has the capability to lift the soil, either through the casing as the casing is driven into place, or to create a hole into which the casing can be lowered. The current plan is to use the vacuum excavator first to ensure there are no obstructions at the chosen locations. Samples will then be taken at pre-determined, statistically significant locations. Next the holes will be backfilled, to prevent a safety hazard, and the drill rig will be placed over the same location in order to install the geoprobe casing. The casing will be driven in 2 m (4-ft) lengths, a standard length for geoprobe casing.

By vacuum-excavating the upper portion of the probehole, the effects of vibration will be minimized when advancing the probes deeper. Also, the soil can be vacuumed directly through the inside of the pipe so that the hole will not collapse during excavation. Finally, the excavated soil will be contained within a closed loop ending in a 35-gal drum, reducing the risk of an air release and allowing for soil samples to be collected as needed at a later date after logging. It is anticipated that the vacuum excavator will be used down to 4.5 m (15 ft) in some of the probe locations.

A direct push system or sonic drill rig is proposed to advance the probes through the soil to approximately 13.7 m (45 ft). These tools have the energy to drive probes to the required depth and will meet the weight load limit restrictions inside the Tank Farm. The degree of vibration during installation is considered to be less with these techniques, resulting in less impact to the nearby subsurface structures and piping. The INEEL has experience with these techniques and has existing operating and handling procedures in place.

### **3. PROJECTED WASTE STREAM TYPES AND ESTIMATED VOLUMES**

As described in Section 2, the following activities conducted during the OU 3-14 RI will generate waste which will need to be characterized and dispositioned: 1) Installation of Aquifer Wells, 2) Test Demonstration, and 3) Tank Farm Soil Investigation. In addition, once the aquifer wells are installed, they will be routinely monitored and sampled, which could also generate waste. Ten distinct waste stream types anticipated to be generated during the RI have been identified. The following subsections describe the waste stream types and provide estimated total volumes. Table 3-1 breaks out anticipated waste quantities by each OU 3-14 RI project and provides potential waste classifications. Volumes should be considered as conservatively high estimates. Further discussion of waste characterization and potential waste classification is included in Section 4.

#### **3.1 Personal Protective Equipment, Contamination Control Supplies, and Miscellaneous Waste**

Personal protective equipment (PPE) in the form of anti-contamination (anti-Cs) clothing, coveralls, shoe covers, boots, gloves, glove liners, hoods and tape will be generated on the OU 3-14 projects, both in the field and at the analytical laboratories. Contamination control and decontamination supplies will include blotter paper, plastic sheeting and sleeving, bags, rags, tissues, masslin cloth, paper smears and tape. Miscellaneous waste such as trash, labels, paper and other miscellaneous debris may also be generated during the RI. Coveralls and hoods are generally made of paper or Tyvek. Reusable cloth coveralls will not be used. Gloves are generally composed of latex or nitrile, and the liners are disposable cloth. Shoe covers and boots are generally rubber; polyvinyl chloride (PVC) boots and shoe covers will not be used. Duct tape is used to secure the various layers of PPE. Heavy radiation bags made from PVC will not be used. The total projected volume for this waste stream type is 52.3 m<sup>3</sup> (68.4 yd<sup>3</sup>).

#### **3.2 Unused or Unaltered Sample Material**

During completion of the projects covered by this plan, collection of different types of environmental media is planned, including soil, basalt, alluvial and interbed sediments, and groundwater. Ground water and other aqueous samples (e.g., quality control samples) are often acidified prior to shipment to the laboratory for analysis (see Section 3.3). Samples of solid environmental media and some aqueous samples (e.g., those for analysis of semi-volatile compounds) are typically chilled between collection and analysis. It is likely that during field operations, excess material not needed for laboratory analysis may be generated. For example, excess soil cores not required for sampling and analysis, may be generated during core drilling. It is also likely that not all of the sample material sent to the analytical laboratories will be utilized in the planned analyses. The total projected volume for this waste stream type is 84 m<sup>3</sup> (110 yd<sup>3</sup>) for solids and 38 L (10 gal) for liquids.

#### **3.3 Analytical Residues and Sample Preservation Residues**

Field preparation and the laboratory analysis of the collected environmental samples will produce sample preservation and analytical residues. The characteristics of these will vary based on the planned analyses, but will include both aqueous and organic solutions. Many chemical analyses, including those for organic and radiochemical substances, utilize flammable solvents such as hexane, toluene, acetone, and methanol. Aqueous solutions produced during most chemical analyses, while usually mostly water, contain varying percentages of acids and bases, such as sodium hydroxide, sulfuric acid, hydrochloric

**Table 3-1.** Estimated Quantities of OU 3-14 RI/FS Waste (in cubic meters unless otherwise specified) and Potential Classifications.

OU 3-14 Waste Stream	Non-Hazardous and Non-Radioactive	Radioactive	Radioactive and RCRA Hazardous <sup>1</sup>	Potential RCRA Codes <sup>1</sup>
<b>Installation of Aquifer Wells</b>				
PPE, contamination control and miscellaneous waste	—	—	2 to 4 (3 to 5 yd <sup>3</sup> )	F001, F002, F005, U134
Unused or unaltered sample material (this estimate includes well sludge)	—	—	76 (100 yd <sup>3</sup> )	F001, F002, F005, U134
Analytical residues	—	—	4 L (1 gal)	F001, F002, F005, U134 D002 <sup>a</sup>
Sample containers	—	0.8 (1 yd <sup>3</sup> )	—	NA
Excess soil drill cuttings (injection well will be cored, one aquifer well will be cored and stored, and one well will be drilled)	—	—	382 (500 yd <sup>3</sup> )	F001, F002, F005, U134
Hydraulic spills	208 L (55 gal)	—	—	NA
Purge water (3 wells @ 2500 gal ea)	—	—	28,391 L (7,500 gal)	F001, F002, F005, U134
Decontamination fluids (3 wells @ 35 gal per well)	—	—	587 L (155 gal)	F001, F002, F005, U134
Contaminated equipment waste	—	—	0	F001, F002, F005, U134
<b>Test Demonstration</b>				
PPE, contamination control and miscellaneous waste	0.8 (1 yd <sup>3</sup> )	—	—	NA
Unused or unaltered sample material	0	—	—	NA
Analytical residues	0	—	—	NA
Sample containers	0	—	—	NA
Excess soil drill cuttings	0	—	—	NA
Hydraulic spills	208 L (55 gal)	—	—	NA
Purge water	0	—	—	NA
Decontamination fluids	0	—	—	NA
Contaminated equipment waste	0	—	—	NA
<b>Tank Farm Soil Investigation</b>				
PPE, contamination control and miscellaneous waste	—	—	46 (60 yd <sup>3</sup> )	F001, F002, F005, U134
Unused or unaltered sample material	—	—	8 (10 yd <sup>3</sup> )	F001, F002, F005, U134

**Table 3-1.** (continued).

OU 3-14 Waste Stream	Non-Hazardous and Non-Radioactive	Radioactive	Radioactive and RCRA Hazardous <sup>1</sup>	Potential RCRA Codes <sup>1</sup>
Analytical residues	—	—	76 L (20 gal)	F001, F002, F005, U134, D002 <sup>a</sup>
Sample containers	—	0.8 (1 yd <sup>3</sup> )	—	NA
Excess soil drill cuttings	—	—	76 (100 yd <sup>3</sup> )	F001, F002, F005, U134
Hydraulic spills	208 L (55 gal)	—	—	NA
Purge water	0	0		F001, F002, F005, U134
Decontamination fluids (cleaning vacuum equipment, probe equipment, gamma tools, and personnel)	—	—	7,571 L (2,000 gal)	F001, F002, F005, U134
Contaminated equipment waste	—	—	0	F001, F002, F005, U134
<b>Routine Sampling and Monitoring (per sampling round)</b>				
PPE, contamination control and miscellaneous waste	—	—	1.5 (2 yd <sup>3</sup> )	F001, F002, F005, U134
Unused or unaltered sample material	—	—	38 L (10 gal)	F001, F002, F005, U134
Analytical residues	—	—	95 L (25 gal)	F001, F002, F005, U134, D002 <sup>a</sup>
Sample containers	—	0.8 (1 yd <sup>3</sup> )	—	NA
Excess soil drill cuttings	—	—	0	F001, F002, F005, U134
Hydraulic spills	0	—	—	NA
Purge water	0	0	13,627 L (3,600 gal)	F001, F002, F005, U134
Decontamination fluids	—	—	1,893 L (500 gal)	F001, F002, F005, U134
Contaminated equipment waste	—	—	0	F001, F002, F005, U134

a. Codes applicable as a result of the analytical processes will be identified by the laboratory.

Notes: 1. Sampling, according to project sampling plans, will determine if the waste is RCRA characteristically hazardous.

acid, nitric acid and acetic acid. Ground water and other aqueous samples (e.g., quality assurance samples) are often preserved with acids and occasionally with bases prior to shipment to the laboratory. These are considered sample preservation residues, rather than unaltered sample materials. The total projected volume for this waste stream type is 175 L (46 gal).

### **3.4 Sample Containers**

Split-spoon samplers, Lexan tubes, or other thin-walled sample devices are used to collect undisturbed cores of geologic material from boreholes. These may be composed of steel, aluminum, Teflon, brass or plastic. Once used, they will become a waste stream if they cannot be decontaminated for reuse. When the cores retrieved from a borehole show elevated contamination levels, it will be necessary to decide if the retrieved core sampler should be decontaminated or be disposed. It is likely that only the Tank Farm Soil Investigation and Routine Sampling and Monitoring activities (within the Tank Farm fence) would have the potential to generate this type of waste.

Generally, unaltered, unused sample material is returned from the analytical laboratory in the original sample container. Once empty (e.g., following the return of the sample material to the source or to an appropriate waste stream), the empty sample container becomes a waste. Environmental media samples are typically collected in glass, Teflon, or high-density polyethylene (HDPE) containers with Teflon-coated lids. The total projected volume for this waste stream type is 2.4 m<sup>3</sup> (3 yd<sup>3</sup>).

### **3.5 Excess Soil and Drill Cuttings**

During drilling activities, soil cuttings are generated as the hole is advanced in the ground. If an auger system is used the cuttings are rotated up to the ground surface. When a rotary drilling system is used, the cuttings are brought up the annulus along with the circulation fluid. At locations where monitoring wells are to be installed the cuttings will be contained as they are generated. For those boreholes where wells will not be installed, the cuttings will be returned to the hole. Excess soil drill cuttings are those which cannot be returned to the drill hole. These may be generated on drilling covered by this plan. Additionally, use of the vacuum excavator to avoid subsurface piping and structures will generate excess soil. The total projected volume for this waste stream type is 458 m<sup>3</sup> (600 yd<sup>3</sup>).

### **3.6 Hydraulic Spills**

During all drilling activities the potential exists for spills of hydraulic fluid from the heavy equipment in use. In the event of a spill, free liquids will be contained and recycled if practical. If the free liquids cannot be contained they will be absorbed and contained. In the event of a hydraulic spill to the ground, the contaminated soil will be removed and contained separately. Hydraulic spills are reported immediately to the spill notification team and will be cleaned up within 24 hours. The total projected volume for this waste stream type is 624 L (165 gal).

### **3.7 Purge Water**

Following well completion, future groundwater sampling is planned at most locations and at regular intervals. Prior to collection of samples, wells are “purged” of a quantity of groundwater equal to three well volumes. The purge water will be pumped to the well head and contained as it is generated. The total projected volume for this waste stream type is 42,018 L (11,100 gal).

### **3.8 Decontamination Fluids**

Decontamination fluids will be generated by wet decontamination of equipment and drill rigs. Before and after completion of all drilling activities, the large pieces of equipment (e.g., drill rigs) are steam cleaned. Between drilling locations, generally only that portion of the drilling equipment directly contacting the soil (e.g., the core barrel and bits) is cleaned. Sample equipment such as split barrel samplers, spoons, etc., is decontaminated following each use. Typical equipment decontamination involves removal of large soil particles with a brush or wipes followed by a soapy water wash, and several rinses with tap and deionized water. Dry decontamination methods can also be utilized which eliminates the generation of decontamination liquid. A final rinse or wipe down using a solvent such as isopropanol is used at sites where sampling and analysis for organic compounds is being performed. The total projected volume for this waste stream type is 10,051 L (2,655 gal).

### **3.9 Contaminated Equipment**

This type of waste would most likely include drill steel, steel auger flights and other equipment used to core and sample boreholes. The contaminated equipment would become a waste stream in the event that it could not be decontaminated or re-used for another drilling program, and disposal was required. When the cores retrieved from a borehole show elevated contamination levels it will be necessary to decide if the retrieved equipment should be decontaminated or be disposed. The subcontractor representative, construction engineer, and field team leader will decide the disposition of the steel from contaminated boreholes. It is likely that only the Tank Farm Soil Investigation and Routine Sampling and Monitoring activities (within the Tank Farm fence) would have the potential to generate this type of waste. The total volume of this waste stream type will be determined during the project.

### **3.10 New Waste Streams**

Any new waste streams generated must be identified and characterized. At the time of generation of a new waste stream, process knowledge may be sufficient to determine storage and disposal requirements. If process knowledge is insufficient, further characterization requirements for the waste will be determined. The new waste stream will be managed as an unknown (i.e., hazardous) until it is known otherwise. A hazardous waste determination will be completed for new waste streams as they are generated and/or upon receipt of analytical results.

## 4. WASTE CHARACTERIZATION

All waste generated will be characterized as required by company-wide MCPs, U.S. Department of Energy Orders 435.1 and 5400.5 and RCRA (40 CFR 262.11). Based on the characterization, hazardous waste determinations will be performed and documented to assign the appropriate U.S. Environmental Protection Agency (EPA) waste codes.

A hazardous waste determination uses one of two approaches, or a combination of both, to determine if the waste is RCRA hazardous:

1. Process knowledge may be used if there is sufficient existing information to characterize the waste. Process knowledge may include direct knowledge of the source of the contamination or existing validated analytical data.
2. Analysis of representative samples of the waste stream may be performed by either specialized RCRA protocols or standard protocols for sampling and laboratory analysis that are not specialized RCRA methods and other equivalent regulatory approved methods. Process knowledge may influence the amount of sampling and analysis required to perform characterization.

Much of the contamination in the soil at the INTEC Tank Farm is the result of releases of waste that carry both RCRA characteristic and listed waste codes. The following listed codes and constituents have been determined to be applicable to waste associated with the INTEC Tank Farm (DOE-ID 1999c):

- |                         |               |
|-------------------------|---------------|
| • 1,1,1-Trichloroethane | F001 and F002 |
| • Trichloroethylene     | F001 and F002 |
| • Carbon Tetrachloride  | F001 and F002 |
| • Tetrachloroethylene   | F002          |
| • Toluene               | F005          |
| • Benzene               | F005          |
| • Carbon Disulfide      | F005          |
| • Pyridine              | F005          |
| • Hydrofluoric Acid     | U134.         |

High-level liquid waste and process equipment waste evaporator (PEW Evaporator) condensate waste is considered a corrosive characteristic waste (D002) and may have been characteristically hazardous for metals. In addition, acetone, methyl isobutyl ketone, and xylene, all F003 listed waste, are known to have entered the PEW Evaporator or high-level liquid waste system. These constituents were listed solely because they exhibited the characteristic of ignitability. The source waste stream meets the 40 Code of Federal Regulation (CFR) 261.3 exclusion. The F003 code no longer applies, however, the waste remains subject to the 40 CFR 268.40 treatment standards, if LDR treatment is required. Many of

the sites under consideration are the result of more than one release and in many cases the source of the contamination at a site is not well defined (e.g., contaminated backfill used at CPP-20 and CPP-25). All of the sites under consideration within the INTEC Tank Farm fence, including CPP-96, may have to be considered as containing the four listed waste codes. Consequently, all solid waste generated during operations described in this plan, that has come into direct contact with contaminated environmental media at the INTEC tank sites, may also have to be considered as listed waste.

The aquifer well installation and sampling, as well as the future monitoring activities, are designed to evaluate environmental contamination as a result of injection well operations. A high potential exists for contact with contaminated environmental media associated with past disposal to the former INTEC injection well, which closed to state of Idaho RCRA Standards. Best management practice directs that all investigation-derived waste generated inside the INTEC fence during the OU 3-14 investigation, that has directly contacted contaminated environmental media, be managed as potentially containing the four listed codes discussed above. A high potential also exists for contact with environmental media contaminated with radionuclides during the OU 3-14 investigation within the INTEC area. All IDW directly contacting environmental media must be managed as potential mixed waste, pending a hazardous waste determination.

The location of the test demonstration is known to be free of contamination and will be used to demonstrate that work can be performed safely in level D PPE. Waste generated during the test demonstration will be considered cold (i.e., nonradioactive, nonhazardous) industrial waste.

Hazardous waste determinations will be completed for all waste generated which may change some of the anticipated volumes (and/or classifications) of certain wastes. Only materials that have physically contacted contaminated environmental media need to be managed as contaminated waste. Field and laboratory personnel will be responsible for segregating waste on this basis to reduce the volume of mixed waste.

## **4.1 Personal Protective Equipment, Contamination Control Supplies, and Miscellaneous Waste**

### **4.1.1 PPE, Contamination Control, and Miscellaneous Waste Potentially Classified as Mixed Waste**

Typically PPE, contamination control supplies, and other miscellaneous waste are characterized based on the characteristics of the site or activity generating the waste. For example, used PPE generated during the Tank Farm soil investigation could be considered to be contaminated with the same contaminants detected during analytical testing of soil samples collected at the site, or as determined by process knowledge, and as determined through a hazardous waste determination. The contaminants to be sampled and analyzed for during the Tank Farm soil investigation and other OU 3-14 projects are described in detail in the field sampling plans associated with the RI activities (DOE-ID 2000a, 2000b). The selection of analytes for testing during the different projects was based on process knowledge about the sites as well as the anticipated data end uses, including waste characterization. To characterize the waste for storage and ultimate disposal, the PPE, contamination control supplies, and other miscellaneous waste will be assumed to contain the same contaminants as the sites from which it was generated. The concentrations of the contaminants in the waste will be assumed to equal 1% of the detected site concentrations, unless other more specific information is available for the waste.

#### **4.1.2 PPE, Contamination Control, and Miscellaneous Waste Classified as Conditional Industrial Waste**

This waste will be characterized based on process knowledge about the site where the waste will be generated and analytical data. Conditional waste has been through the hazardous waste determination process and is determined to be non-hazardous and non-radiological. Conditional waste is typically disposed to the CFA industrial landfill.

### **4.2 Unused or unaltered Sample Material**

Unused, unaltered sample materials may include soil or groundwater materials. Characterization of these materials for storage, treatment, and disposal are discussed in Sections 4.5 and 4.7.

### **4.3 Analytical Residues/Sample Preservation Residues (Old—New Waste Streams)**

At the laboratory, like excess sample material, the analytical and sample preservation residues will be managed in accordance with the contractual statement of work issued by the SMO. On-Site analytical laboratories are also responsible for storage and disposal of analytical and sample preservation residues. Although it is unlikely, it is possible that following analysis, there will be analytical or sample preservation residues that will need to be shipped from the off-Site analytical laboratories to the INEEL. This may be necessary if no commercially available disposable option is available for the generated waste or if radiation levels make commercial disposal impossible. The OU 3-14 project personnel will be responsible for identifying whether analytical waste needs to be returned to the INEEL, based on the analytical results for the sampled environmental media. This waste would carry the same waste codes as the environmental media from which it is derived.

### **4.4 Sample Containers**

Used sample containers generated during the aquifer wells drilling and sampling would have come into direct contact with the environmental media which may contain listed waste and may be radioactively contaminated. Used sample containers, once properly emptied, fall under the RCRA empty container rule (40 CFR 261.7). This means once the containers are emptied, if material is returned to the place of origin, they are no longer regulated under RCRA Subtitle C (i.e., are not hazardous waste). However, it is unlikely that these materials will still need to be managed as radioactive waste.

### **4.5 Excess Soil and Drill Cuttings**

Excess soil drill cuttings are defined as soil that cannot be returned to the drill hole. Since all drill holes produced during the installation of aquifer wells will be completed as aquifer wells, soil cutting will not be returned to the holes. The soil will be contained upon generation. Excess soil and drill cuttings will be characterized for storage and disposition based on process knowledge and the sampling and analysis results for the site from which the materials were generated (see Table 4-1).

**Table 4-1.** Disposition characterization requirements for OU 3-14 soil.

Characteristic or Analyte	Characterization or Analytical Method	Data End Use	Comments
RCRA waste codes, treatability groups/subcategories and treatment standards	Process knowledge and totals, and TCLP sampling and analysis results (SW-846 and CLP protocol).	Comparison to IDCF disposal criteria.	Characteristic waste codes will be applied based on results of sampling and analysis. If TCLP results are not available, values for comparison to regulated TCLP concentrations will be estimated by dividing the soil total concentrations by 20. Analytical TCLP results, soil pH (Method 9045), paint filter test (Method 9095), and analysis for reactive cyanide and sulfide. If reactive cyanide results are >20 ppm total and amendable cyanides must be tested for use SW-846 methods 9010 or 9012.
Benzene Carbon Disulfide Carbon Tetrachloroethylene Toluene 1,1,1-Trichloroethane Trichloroethylene Acetone Ethyl acetate Methyl isobutyl ketone Xylenes Pyridine Tetrachloroethylene	CLP totals results	Comparison to RCRA treatment standards or cumulative risk assessment levels (for contained-in determination)	Constituents listed in the 40 CFR 268.40 treatment standards for F001-F005 listed waste and known to have been disposed of to the INTEC Process Equipment Waste Evaporator and Tank Farm (DOE-ID 1999c).
Cyclohexanone Methanol	CLP totals and TCLP results	Comparison to RCRA treatment standards and cumulative risk assessment levels (for a contained-in determination).	Constituents listed in the 40 CFR 268.40 treatment standards for F001-F005 listed waste and known to have been disposed of to the INTEC Process Equipment Waste Evaporator and Tank Farm (DOE-ID, 1999c).
1,1,2-Trichloroethane Methyl ethyl ketone Chlorobenzene Cresol Ethyl benzene Ethyl ether Isobutyl alcohol Methylene chloride Nitrobenzene	CLP totals results	Comparison to RCRA treatment standards or cumulative risk assessment levels (for contained-in determination)	Constituents listed in the 40 CFR 268.40 treatment standards for F001-F005 and that may be present at OU 3-14 sites.
Cyclohexane	CLP totals results	Comparison to cumulative risk assessment levels (for contained-in determination)	Constituents known to have been disposed of to the INTEC Process Equipment Waste Evaporator and Tank Farm (DOE-ID 1999c). NOTE: list is not comprehensive.

**Table 4-1.** (continued)

<b>Characteristic or Analyte</b>	<b>Characterization or Analytical Method</b>	<b>Data End Use</b>	<b>Comments</b>
Antimony Arsenic Barium Beryllium Cadmium Chromium (total) Lead Mercury Nickel Selenium Silver Thallium Vanadium Zinc	CLP totals and TCLP results	Comparison to RCRA treatment standards or cumulative risk assessment levels (for a contained-in determination)	Constituents listed in 40 CFR 268.48 Universal Treatment Standards and that may be present at OU 3-14 sites, based on previous sampling and analysis.
Other organic and inorganic constituents	SW-846 and CLP protocol	Comparison to RCRA treatment standards or cumulative risk assessment levels (for a contained-in determination)	Includes other constituents detected during sampling and analysis that are listed in 40 CFR 268.48 Universal Treatment Standard or for which calculation of risk-based concentrations are appropriate.
Description of soil (color, odor, density range, moisture content)	Characterization of soil cores collected during OU 3-14 investigations	Evaluation against facility WAC	Characterization of moisture content by ASTM-698, and an estimation of the % of materials that can pass through different sieve sizes
Total Organic Halides Fluoride Sulfide Nitrate	SW-846 Methods	Evaluate against facility WAC	
Radionuclides as defined in 10 CFR 61.55	Calculate from radionuclide results	Evaluate against ICDF WAC (not yet defined), or other facility WAC	Selected radionuclides to be tested for will be based on a documented evaluation of radionuclides known to be present in waste that may have been released to the environment in OU 3-14.
Radionuclides	Process knowledge, radiochemical analysis and scaling	Evaluate against ICDF, or other facility WAC, compare to risk-based levels (defined in OU 3-13 Record of Decision	Selected radionuclides to be tested for will be based on a documented evaluation of radionuclides known to be present in waste that may have been released to the environment in OU 3-14.

As discussed in Section 4.1, the contaminants to be sampled and analyzed for during the Tank Farm soil investigation and other OU 3-14 projects are described in detail in the field sampling plans for each project (DOE-ID 2000a, 2000b). The analytes selected for testing during the different projects were based on process knowledge about the sites as well as the anticipated data end uses, including waste characterization. Characterization of OU 3-14 soil for most of the disposal options requires extensive information on radionuclides in the soil for comparison to facility limits. A process or radiological engineer will evaluate and document the radionuclides which may be present in OU 3-14 soil based on the processes producing the waste released to the soil at OU 3-14. In addition the engineer will develop, as appropriate, scaling factors to characterize radionuclide activities in the OU 3-14 soil. This evaluation will guide selection of radionuclides for laboratory analysis of soil samples and subsequent characterization of the soil for comparison to appropriate disposition criteria.

## **4.6 Hydraulic Oil Spills**

Containers of hydraulic spill residues will be characterized based on process knowledge about the material, the media it is spilled onto (if necessary), and the absorbents used to contain the spill (if necessary). Information on the hydraulic oil, if spilled, will be available from material safety data sheets (MSDS). Information on the media on which it may be spilled (e.g., soil) should be available in the OU 3-14 sampling and analysis results for the site. Project personnel should be careful to record specific information on the quantities of each type of material in a container of spill residues, as well as reference applicable MSDS or manufacturer's information on absorbent materials.

## **4.7 Purge Water**

Purge water will be characterized for storage and disposition based on process knowledge and the sampling and analysis results for the site from which the materials were generated. Characterization information necessary for storage and disposal includes that necessary to determine applicable RCRA waste codes and radionuclide content. These will be determined from TCLP and other testing for the materials and by using the results for groundwater samples.

Substantial volumes of well development and purge water may be generated during the well development and routine sampling of the aquifer wells. This water will be managed as a potentially mixed waste, pending a hazardous waste determination.

## **4.8 Decontamination Fluids**

The decontamination fluids generated after drilling and sampling at any of the planned aquifer well installation locations could contain mixed waste. To the extent practicable, decontamination water will be contained separately for each drilling location. The post-drilling decontamination fluids may contain oil or grease in addition to any radionuclide or hazardous contamination that may be present. Decontamination fluids that may contain only oil, grease, and grime may be produced during the initial decontamination of equipment prior to beginning the aquifer wells drilling.

## **4.9 Contaminated Equipment**

Contaminated equipment waste stored following OU 3-14 field activities would be characterized as mixed waste based on process knowledge about the site where the equipment became contaminated. As outlined in Section 5, treatment of the waste to the debris treatment standards in 40 CFR 268.45 may be appropriate for some or all of the materials. If so, characterization requirements following treatment would be driven by the criteria in the treatment standards. Radiological characterization would be in accordance with the INEEL Radiological Control Manual. Characterization requirements for other treatment or disposal options for the waste (e.g., macroencapsulation) would be defined if and when it is determined that they are necessary.

## **5. WASTE MANAGEMENT**

The investigation-derived waste resulting from the activities conducted during the OU 3-14 RI could be classified into the following categories; 1) industrial, both conditional and non-conditional, 2) hazardous, 3) low-level/TRU, and 4) mixed low-level/TRU. These categories of waste will be managed and disposed in accordance the ROD for OU 3-13, this document, the WAC for the SSTF and ICDF, the INEEL Reusable Property, Recyclable Materials and Waste Acceptance Criteria (RRWAC) (DOE-ID 1999a), and applicable state and federal regulations.

### **5.1 Waste Minimization and Segregation**

Waste minimization for this project will be accomplished through design and planning to ensure efficient operations that will not generate unnecessary waste. As part of the pre-job briefing, emphasis will be placed on waste reduction philosophies and techniques, and personnel will be encouraged to continuously attempt to improve methods for minimizing waste generation. Practices to be instituted to support waste minimization include, but are not limited to, the following:

- Restricting material (especially hazardous material) entering radiological buffer areas to those need for work performance
- Substituting recyclable items for disposable items
- Reusing items when practical
- Segregating contaminated from uncontaminated waste
- Segregating reusable items such as PPE and tools.

### **5.2 Packaging**

Packaging of all waste materials generated will be in compliance with the RRWAC, the U. S. Department of Transportation (DOT) regulations (49 CDF 171, 173, 177, and 178) and RCRA regulations found in 40 CFR 264 Subpart I. Storage containers used to store hazardous waste must be in good condition and compatible with the waste being stored. It is also important that containers selected for storage of all waste (hazardous or radioactive or industrial) are compatible with final disposition plans for the waste. This will alleviate the need for repackaging of the waste prior to shipment to a treatment or disposal facility. The following general categories of containers are anticipated for storage of various OU 3-14 IDW and contaminated environmental media:

- 133 L (35-gal) drums (contaminated soil)
- 208 L (55-gal) drums
- INEEL wooden boxes ( $1.2 \times 1.2 \times 2.4$  m [ $4 \times 4 \times 8$  ft] and  $0.6 \times 1.2 \times 2.4$  m [ $2 \times 4 \times 8$  ft])
- 2462-L (650-gal) double wall, polyethylene tanks
- $8.8 \times 2.4 \times 2.4$  m ( $20 \times 8 \times 8$  ft) steel reinforced Sealander boxes or cargo containers.

The Waste Generator Services (WGS) and Packaging and Transportation (P&T) personnel will be consulted prior to generation of any waste to identify the specific types of containers in each category that should be used for the anticipated waste. Only new or like-new containers will be used. Radioactive materials must be packaged to adequately protect the materials from weather and that the outside packaging be free of removable radioactive contamination. It is anticipated that most of the contained waste and environmental media generated during OU 3-14 field investigations will be stored outside and therefore will need to be protected from the elements. The exception to this is waste stored in Sealander boxes or cargo containers. Wooden boxes will be partially covered with thick tarps that will protect against weather, but will still allow inspection of the container to ensure their integrity. The polyethylene tanks used to store groundwater will also be double walled.

### **5.3 Labeling**

All waste containers will be labeled appropriately. Conditional waste will be labeled as such. All CERCLA IDW will be labeled with a "CERCLA Waste" label that includes an accumulation start date, waste description, applicable waste codes, and the generator's name. Each container will have a barcode label generated from the INEEL Integrated Waste Tracking System (IWTS) database. All container labels will be placed where they are clearly visible during storage and shipment. Drums will be labeled on top and on one side. Boxes will be labeled on the top and on two opposing sides of the container. If cargo or Sealander containers are used, they will be labeled on two opposing sides. Polyethylene tanks used to hold well development or purge water will also be labeled on opposing sides. Radiation labels will be completed and placed on each container by a RCT as required by the INEEL Radiological Control Manual. During shipment, other information must be included on containers such as applicable DOT labels, manifest number, gross weight, and shipper's complete name and address.

### **5.4 Storage, Inspections, and Record Keeping**

Most of the containers of CERCLA IDW generated from the OU 3-14 RI will be stored in the CERCLA storage area known as the Storage and Stabilization Annex (SSA), located inside the INTEC facility. Waste from the Test Demonstration, which will be conducted outside of the INTEC facility fence, may be stored in a registered CERCLA storage area specifically arranged for that project. Waste entering the SSA must comply with the Waste Management Plan for the Staging and Storage Annex (DOE-ID 2000c). The SSA complies with all applicable state and federal requirements regarding storage of hazardous and/or radioactive waste, including having a RCRA contingency plan, emergency communication system and equipment, alarms, and aisle space. As containers are brought into the SSA, the storage area operator will inventory the containers. Information to be recorded will include the IWTS barcode assigned to the container, type of container, type of waste inside the container (including potential waste codes), and the volume of waste inside the container. An evaluation will be performed as each container is logged in to ensure incompatible wastes will be segregated. Only personnel with the appropriate and required training will be allowed to receive waste into the SSA.

The SSA will be inspected weekly for leaks, spills, appropriate aisle space for emergency response, appropriate emergency response equipment, appropriate mitigation of any spills or noncompliance, compatibility of the waste with its container, segregation requirements, appropriate labels, appropriate signs posted, for compliance with applicable radiological requirements, etc. The weekly inspection will be documented in accordance with the SSA waste management plan. Only personnel with the appropriate and required training will be allowed to perform weekly inspections of the SSA.

All information generated from the storage and inspection of waste in the SSA is considered a quality record and must be kept on file indefinitely. Other quality records to be kept include material and

container profiles contained in the INEEL IWTS electronic database. This database contains quality records of sampling and analytical data for waste streams, the hazardous waste determinations for each waste stream, the types, quantities, and content description of containers associated with each waste stream, records of all waste movement, such as shipment to an off-site or on-site approved disposal facility, appropriate Land Disposal Restriction notification/certification, and documentation reflecting compliance with debris treatment performance standards.

## **5.5 Transportation**

CERCLA IDW waste generated during the OU 3-14 RI will be transported to storage areas and/or approved off-site or on-site treatment and disposal facilities in accordance with requirements identified in the RRWAC and applicable DOT and RCRA regulations. WGS and P&T personnel will be responsible for shipping all CERCLA IDW. Industrial waste transported to the INEEL Landfill Complex may be transported by personnel having the proper documentation.

## **5.6 Waste Treatment and Disposition**

As stated earlier, waste generated during the OU 3-14 RI must be managed and disposed in accordance with all applicable project documents and state and federal regulations. Because they will be managed in accordance with sections 11.1 and 12.2 of the OU 3-13 ROD, these wastes should not require treatment. Disposal options for the various waste classifications are discussed below. Prior to waste disposal, the waste streams must comply with the waste acceptance criteria (WAC) of the intended receiving facility and approval for disposal must be obtained.

### **5.6.1 Conditional and Non-conditional Industrial Waste**

Conditional industrial waste would include such items as clean PPE, RCRA-empty containers, petroleum-contaminated material, and/or other items that are determined to be non-hazardous and non-radioactive. Conditional waste has been through the hazardous waste determination process and is typically disposed to the INEEL Landfill Complex. Non-conditional industrial waste usually includes such items as administrative paper waste and lunch-type waste and is disposed to green “cold waste” dumpsters located around the INEEL. Waste from these dumpsters is disposed to the INEEL Landfill Complex.

### **5.6.2 Hazardous Waste**

Most of the waste anticipated to be generated during this project is classified as potentially mixed hazardous and radioactive waste (see Table 3-1). If waste is determined to be hazardous only, it could include such items as PPE and contamination control supplies, unused sample material, analytical residues, drill cuttings, contaminated equipment, well development or purge water, and decontamination fluids. Hazardous waste may require treatment, depending upon analytical results and where the waste will be ultimately disposed.

If treatment is required to meet waste treatment standards imposed by the Land Disposal Restrictions and/or the ICDF WAC, some types of waste could be stabilized, at the anticipated on-site Staging, Storage, and Stabilization Treatment Facility (SSSTF), or at an approved off-site facility. The SSSTF will have the capacity to treat waste that will ultimately be disposed in the INEEL CERCLA Disposal Facility (ICDF). The ICDF is currently in the design process and will be able to accept hazardous and radioactive waste.

Contaminated equipment waste can be considered as hazardous debris under RCRA. If possible, these items may be able to be treated to meet the debris treatment standard found in 40 CFR 268.45. Hazardous debris treated by extraction or destruction technologies specified in the standard are no longer hazardous. The extraction and destruction treatment standards for hazardous debris require treatment to a “clean debris surface”, which can only be determined visually. Debris with surfaces that cannot be inspected visually, such as the inside of piping or tubing with a very small diameter, would probably not be able to meet this standard and would have to be disposed as hazardous waste.

If treatment is not required, options for hazardous waste include disposal at an approved off-site facility or disposal at the ICDF. In some instances, such as for unused or unaltered samples, the material may be able to be returned to the place of origin. The ICDF will have associated evaporation ponds, which will be able to accept liquid hazardous and/or radioactive waste. Well development and/or purge water and decontamination fluids could be disposed to the evaporation ponds, assuming the waste acceptance criteria for the ponds are met. The WAC for the ICDF facility are being developed.

### **5.6.3 Mixed Hazardous and Radioactive Waste**

As seen in Table 3-1, most of the waste to be generated in association with the OU 3-14 RI project has been preliminarily classified as mixed waste, pending hazardous waste determinations. Types of waste that could be classified as mixed include such items as PPE and contamination control supplies, unused sample material, analytical residues, drill cuttings, contaminated equipment, well development or purge water, and decontamination fluids.

If treatment is required for the waste, the treatment options are as discussed for hazardous waste in Section 5.6.2. If contaminated debris cannot be treated to meet the “clean debris surface” due to excessive radiological contamination, this waste can be stored at the SSA for treatment at the SSSTF and disposal at the ICDF.

Options for mixed waste include disposal at an approved off-site facility or disposal at the ICDF. In some instances, such as for unused or unaltered samples, the material may be able to be returned to the place of origin. Well development and/or purge water and decontamination fluids could be disposed to the ICDF evaporation ponds, assuming the WAC for the ponds are met.

### **5.6.4 Radioactive Waste**

As can be seen in Table 3-1, very little waste is anticipated to be generated during the OU 3-14 RI that will be classified as radioactive only. This waste type has been identified as sample containers that held mixed waste and are now RCRA-empty. If any treatment is required for these sample containers, it would likely be compaction. Disposal options include the INEEL Radioactive Waste Management Complex (RWMC) or the ICDF.

If any of the projected mixed waste streams can be determined to be no longer hazardous, their classification could change to radioactive only. All waste classifications will be documented by completed hazardous waste determinations. As stated above, disposal options for radioactive waste include the RWMC or the ICDF.

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- 42 USC § 9601 et seq., December 11, 1980, "Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA/Superfund)," *United States Code*.
- 10 CFR 61.55, *Code of Federal Regulations*, Title 10, "Energy," Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," Subpart .55, "Waste classification."
- 40 CFR 261.3, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 261, "Identification and Listing of Hazardous Waste," Subpart .3, "Definition of hazardous waste."
- 40 CFR 261.7, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 261, "Identification and Listing of Hazardous Waste," Subpart .7, "Residues of hazardous waste in empty containers."
- 40 CFR 262.11, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 262, "Standards Applicable to Generators of Hazardous Waste," Subpart .11, "Hazardous Waste Determination."
- 40 CFR 264, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities."
- 40 CFR 265, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities."
- 40 CFR 268.40, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 268, "Land Disposal Restrictions, Subpart .40, "Applicability of treatment standards."
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- 40 CFR 268.48, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 268, "Land Disposal Restrictions, Subpart .48, "Universal treatment standards."
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- BBWI, Manual 18, "Closure Management," Bechtel BWXT Idaho, LLC.

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